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SP-002  
(Summary)



an Ontario survey of the societal and personal costs of hospitalized motor vehicle accident victims

# INJURY



Ontario

Ministry of  
Transportation and  
Communications

Ministry of  
Health



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# INJURY: AN ONTARIO SURVEY OF THE SOCIETAL AND PERSONAL COSTS OF HOSPITALIZED MOTOR VEHICLE ACCIDENT VICTIMS (GENERAL SUMMARY)

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Interministerial Task  
Force on Motor Vehicle  
Accident Injuries

## FOREWORD

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Published on behalf of the Task force by  
The Policy Planning and Research Division  
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H.F. Gilbert, Deputy Minister

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This report is a general summary of the Task  
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In addition, we wish to thank the 524 respondents to the survey for their cooperation and frank answers to questions that were often a painful reminder of a difficult experience.

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# 1/ INTRODUCTION

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Knowing the total cost (financial and otherwise) of traffic accidents is important to government planners trying to make best use of limited funds to improve highway safety. Further, knowing the sources and amounts of payment for these costs helps government understand who is shouldering this burden.

In 1975, the Ministries of Health, and Transportation and Communications established a Task Force to study various aspects of motor vehicle accident injuries. This study was launched in 1978 and is one in a series of investigations into this area of concern.

The Members of the Task Force are:

Richard Slocum, Chairman and Study Director (MTC)  
Mary Valliant (MOH)  
Jerry Vila (MOH)  
Larry Lonero (MTC)  
Janace Pierce (MTC)

This study is the first in more than a decade to attempt to estimate the real and full costs of motor vehicle accident injury to the people of Ontario. The variety of costs dealt with, both financial and other, has little precedent in earlier work in Canada.

Accident costs include far more than just the cost of repairing a vehicle. Within this study, costs are considered in terms of (i) health care (medical fees, hospital, physiotherapy, emergency room, etc.); (ii) vehicle repair or replacement; (iii) loss of wages; (iv) legal services and (v) expenses to friends.

Non-monetary "costs" are also considered, such as: (i) days lost from normal activities (school, recreation, housekeeping); (ii) emotional problems; (iii) physical after-effects and (iv) family disruptions.

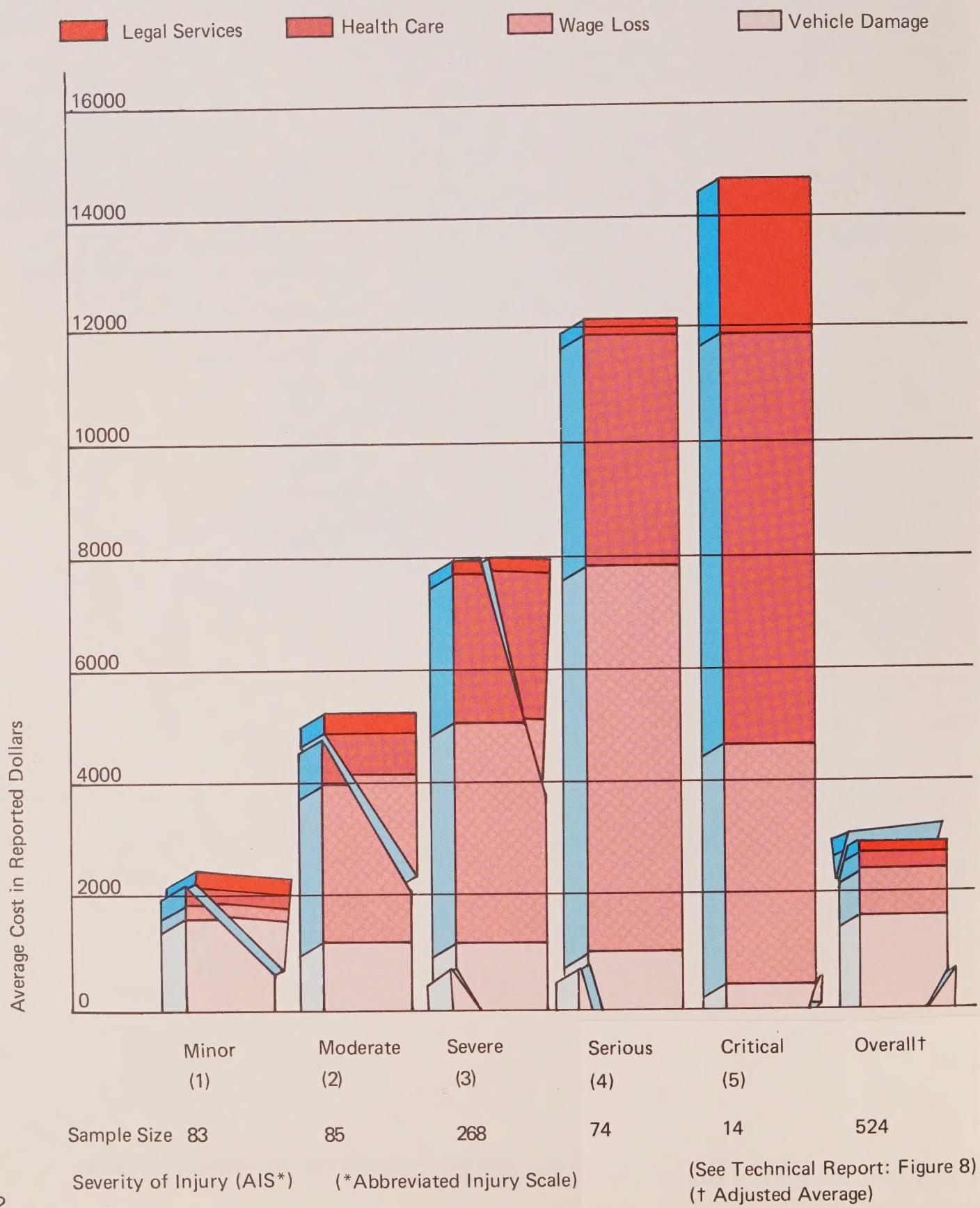
The study also looks at exactly who pays for accident costs: the victim, insurance companies, O.H.I.P. (Ontario Health Insurance Plan), legal settlements and others.

The costs of payments described are based on the responses of 524 *hospitalized motor vehicle accident victims\** who were injured in 1975 and 1976 and treated in Ontario hospitals. This is slightly more than one-third of the total number of questionnaires mailed. Most of those who did not complete the questionnaire could not be contacted by mail or telephone for comment.

In order to study long-term accident injury costs, the survey was conducted three to four years after the accident. Given that about one-fifth of Canada's population moves each year, it was a considerable accomplishment that over one-third of these people could still be contacted and did respond three to four years after the event. The time lag between accident and survey placed a heavy reliance on the memory and record-keeping of the respondents.

\* *Hospitalized motor vehicle accident victims* refers to persons who were treated in a hospital or emergency department and/or admitted to a hospital following a motor vehicle accident.

**Figure 1: Average Cost Per Victim by Severity of Injury**



## 2/ FINDINGS

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### 2.1 / Monetary Costs

The average costs reported by accident victims who had been hospitalized as a result of injuries were \$2,892. This figure included health care expenses, repair or replacement of vehicle, wage loss, legal services and expenses to friends, incurred between 1975 and 1979 as a result of the motor vehicle accident. Average cost varied according to severity of injury, and ranged from \$2,114 for minor injuries to \$14,860 for critical injuries. The total can be broken down into approximately 53% for vehicle damage, 27% for wage loss, 14% for health care and 5% for legal services.

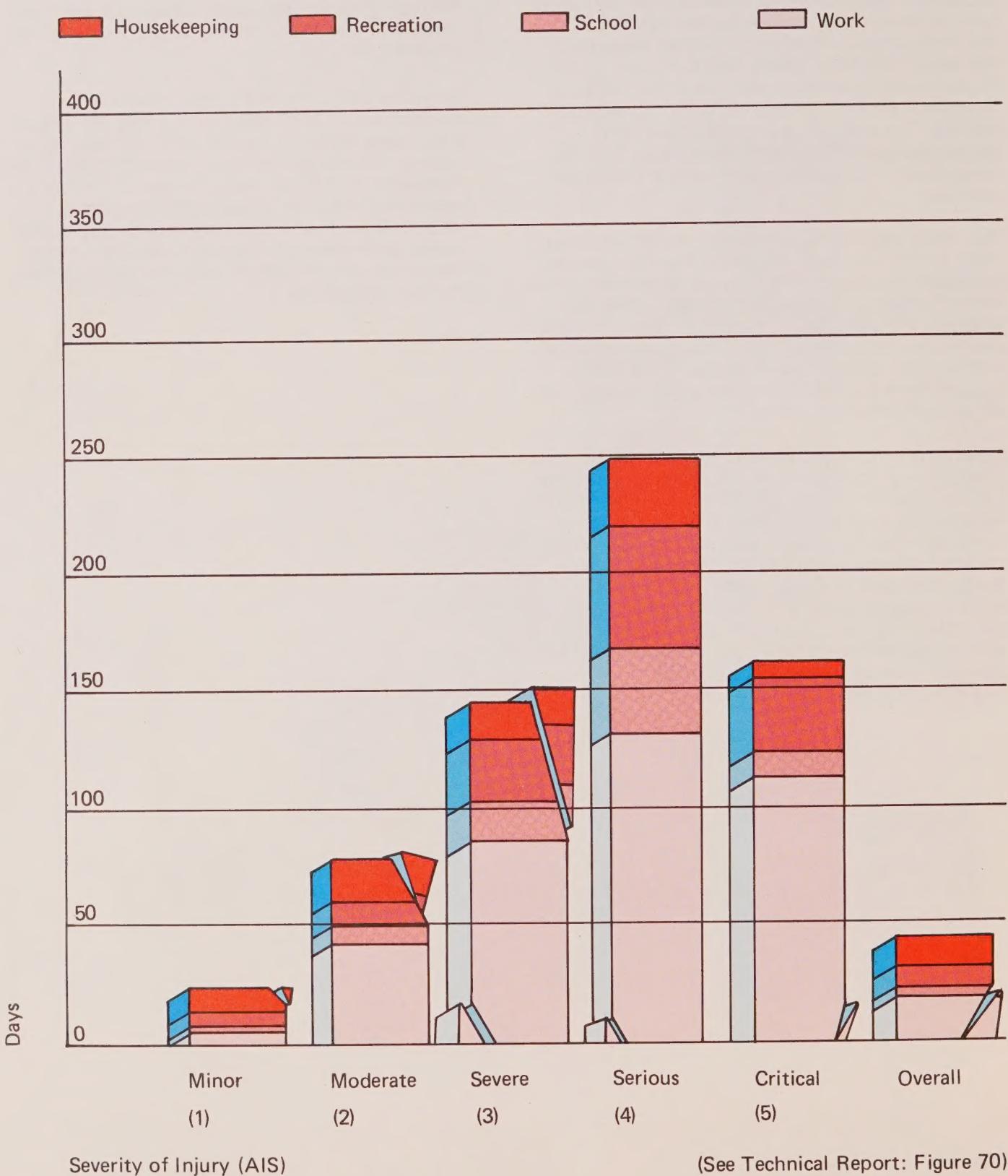
The costs reported in the study are all in terms of 1975 to 1979 dollars. Assuming that the bulk of the costs occurred early in the case history of the victim, it can be estimated that, accounting for inflation, the same type of accident injury in 1980 would cost about 45% more. Hence, the average cost in 1980 dollars would be about \$4,193, ranging from \$3,065 for minor injuries to \$21,547 for critically injured victims.

Health care costs increase in terms of dollars and proportion of total costs as injuries become more severe (Figure 1). They increase from 4% of total costs (\$79) for minor injuries, to 48% of total costs (\$7,199) for critical injuries. Dollars spent on legal services increase with the severity of injury, from \$83 to \$2,635. This last figure is a fairly constant proportion of total costs (5%) for all but critical injuries (18%). It is probable that the size of settlements desired by critically injured accident victims requires considerably more litigation than for lesser injuries.

Vehicle damage is relatively constant in terms of dollars spent, and its proportion declines with the increased severity of injury. Critically injured victims have reported less dollars of vehicle damage; this may be due to statistical variation inherent in the small number of observations in this category.

Wage loss is about half of the total cost for moderate to serious injuries, but only 9% of the total costs for minor injuries and 29% for critical injuries. Wages lost increase from \$200 for minor injuries to \$6,778 for serious injuries. Critically injured victims lose an average of \$4,225 in wages. This lower wage loss may be due to the higher proportion of under 25-year-olds among the sample of critically injured. On average, the cost to friends was \$11.

**Figure 2: Average Days Missed from Normal Activities by Severity of Injury**



## **2.2/ Non-monetary Costs**

"It is impossible to estimate the real costs of an accident: Financially there were no losses. Socially, emotionally and intellectually the costs have been enormous and uncompensated." This comment was made by the parent of a 15-year-old victim who was unconscious for 10 weeks. The victim is still suffering slowness of speech and arm/leg movement. Paralysis is gradually diminishing over a 3-year period.

The study shows that almost two-thirds of hospitalized motor vehicle accident injury victims suffer physical after-effects, while about one-third suffer emotional after-effects. In addition, about one-sixth indicate that the accident affected their family life.

The most common emotional after-effects were: fear of driving or cars (19% of all respondents), nervousness (15%), insomnia (11%) and depression (10%). None of these conditions increased obviously in relation to severity of injury.

Of those indicating that the accident affected family life (16%), the majority indicated that financial problems were the primary effect (60% of the 16%). One-third of those affected also reported general family stress and upset. A small proportion of respondents claimed that the accident resulted in change of residence (16% of the 16%) or a marriage break-up (7% of the 16%).

A primary source of non-monetary costs for the hospitalized victims was days missed from normal activities. Lost activity days were reported by 57% of the respondents. Some 35% reported lost work time, with an average of 45 days (median = 10 days). School days were missed by 15%, with an average of 23 days (median = 6 days). Fourteen percent lost recreation time which averaged about 55 days (median = 30 days). Finally, about 9.5% of respondents lost housekeeping days, averaging 151 days (median = 21 days). This latter figure seems high, which may reflect the fact that house work often requires substantial mobility.

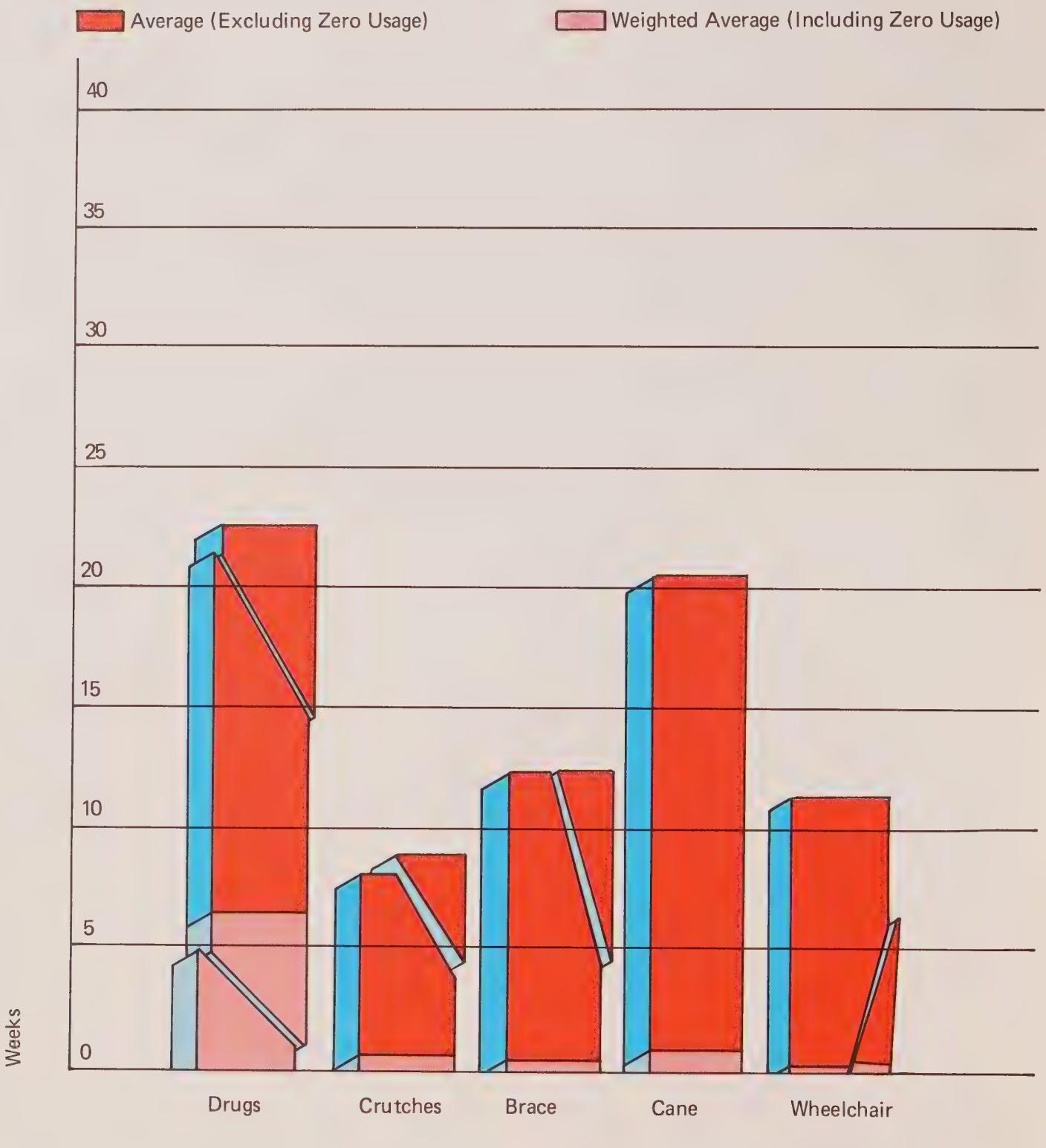
Including all respondents, whether they reported lost days due to their accident or not, work loss averages 16 days, school days lost drops to three, recreation days lost are only eight, and missed housekeeping declines to an average of 14 days (Figure 2).

The amount of time lost from various activities increased with severity of injury, with the exception of critical injuries. This finding was unexpected, and is probably due to the limited size of the critically injured group sample.

Another major cost source not translated into monetary terms was the use of medical aids (Figure 3). About two-thirds of the respondents reported an ambulance trip. Prescription drugs were needed by 29% for an average period of 22 weeks; crutches by 10% for an average period of 9 weeks; a brace by 5% for an average period of 12 weeks; a cane by 4% for an average period of 21 weeks; and a wheelchair by 2% for an average of 11 weeks. Adding together those who reported use of aids and those who didn't, average use of crutches, braces, canes and wheelchairs were all under one week. Prescription drugs, however, were still needed for an average of more than six weeks.

This documentation of the days missed from activities, the physical and emotional after-effects, and the family disturbances verifies that the cost of accidents to victims goes beyond monetary costs.

**Figure 3: Use of Medical Aids**



Type of Medical Aid

(See Technical Report: Figure 83)

### **2.3/ Compensation**

Compensation reflects the value of monetary cost as well as the value of settlements for disability, pain and suffering, and loss of future opportunities. The amount and percentage of compensation (excluding money paid by the victim) increases with severity of injury.

Compensation per victim grew in a geometric progression along the severity of injury scale (Figure 4); whereas, the monetary cost per victim (Figure 1) follows a linear relationship with severity. This is due to the amounts of legal and insurance settlements awarded the more severely injured victims, presumably for residual disability, pain and suffering and loss of future opportunities.

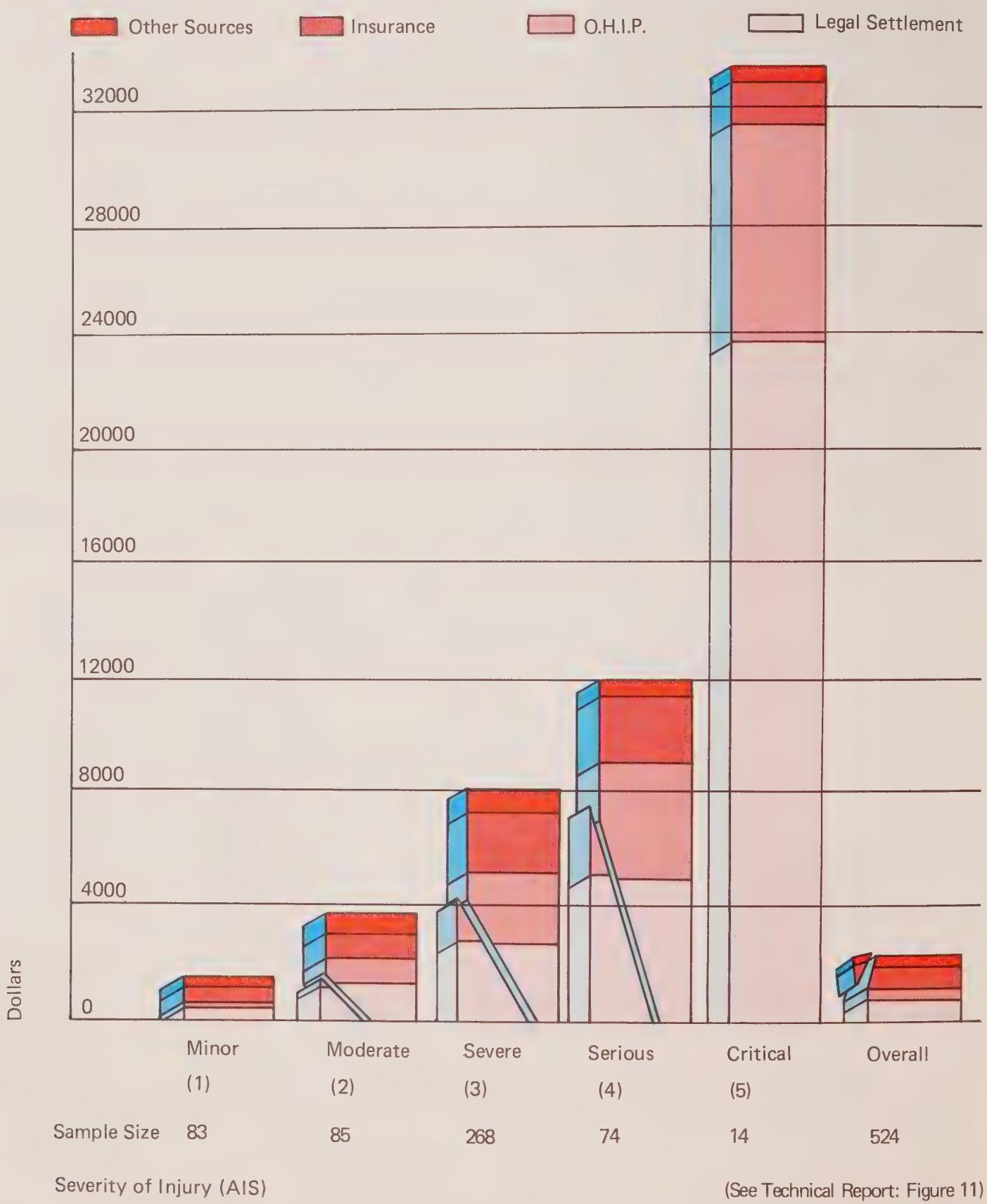
### **2.4/ Province-wide Cost Estimates**

The actual cost of accidents to society cannot be exactly calculated from this study. Nonetheless, it is possible to make selected estimates, based on the survey. Ontario annual cost of hospitalized motor vehicle accident injuries amounted to approximately \$159 million, as shown below.

Cost Items	Average Cost as Reported in 1975 - 1979 \$\$	Estimated No. of Hospitalized Victims*	Estimated Province - wide Cost
Medical Fees	56	55,000	\$ 3,080,000
Hospital	340	—	18,700,000
Physiotherapy	3	—	165,000
Emergency Dept.	13	—	715,000
Vehicle Damage	1,541	—	84,755,000
Legal Fees	129	—	7,095,000
Court Cost	16	—	880,000
Wage Loss	783	—	43,065,000
Friends' Expense	11	—	605,000
Total	\$2,892	55,000	\$159,060,000

\*Hospitalized victims refers to the number of victims who were treated in a hospital emergency department and/or admitted to a hospital following the motor vehicle accident.

**Figure 4: Average Compensation per Victim by Severity of Injury**



Estimated annual health care cost in reported dollars amounted to \$23 million. Vehicle damage cost was almost \$85 million; legal services amounted to \$8 million; and wage losses amounted to an estimated \$43 million, province-wide. Based on the Consumer Price Index increase of 45% from the study period to 1980, the 1980 estimated total annual cost of hospitalized motor vehicle injury accidents in Ontario is \$231 million.

Annual compensation amounted to approximately \$137 million for the hospitalized motor vehicle accident victims. Compensation estimates for 1980 are more difficult to make, since the compensation could have occurred at almost any time during the case histories.

On the non-monetary side, the study findings can be projected province-wide, on a per annum basis, as follows:

- Motor vehicle accident injury (hospitalized) resulted in more than 880,000 lost days of work and 165,000 missed days of school.
- Some 18,000 Ontario hospitalized victims experienced emotional after-effects following motor vehicle accident injury, e.g., fear of driving, nervousness, depression, etc. The full social and economic consequences of this are unknown.
- 37,000 hospitalized victims suffered physical after-effects, e.g., pain, stiffness, scars, headaches, etc.
- An estimated 6,000 hospitalized victims had work and future earnings adversely affected, e.g., less mobility, endurance and the necessity to leave their present type of work.

Sources of Compensation	Average Compensation as Reported in 1975 - 1979 \$\$	Estimated No. of Hospitalized Victims	Estimated Province-wide Compensation
OHIP	\$ 411	55,000	\$22,605,000
Insurance	875	—	48,125,000
Legal Settlements	794	—	43,670,000
Other Sources	413	—	22,715,000
Total	\$ 2,493	55,000	\$137,115,000



## 3/ CONCLUSIONS

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The complete cost of accidents to victims and to society encompasses far more than health care and vehicle repair costs. Not only monetary costs are involved. Accidents also cost their victims time lost from their normal activities, emotional trauma, physical suffering and disruptions to family life. The "cost" of these intangibles is yet to be estimated.

This study is a broad survey of the consequences of motor vehicle accident injury. It represents a significant step toward understanding these consequences. The figures reported in the study include the major costs and payments for motor vehicle accident injury. Future studies should expand the sources of accident cost and compensation, as well as increasing the precision of dollar estimates of cost and payment. This study should provide direction for fruitful future studies in this field.





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